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(54) A triggering mechanism for a head bail

(57) A triggering mechanism (1) for a head bail (2) has an animal head engaging trigger arm (18) mounted on a rotatable shaft (16).

The shaft (16) has a downwardly depending catch (19) with a projection (33) which can engage in front of a wedge-shaped block (34) provided on one of the head bail arms (3) so as to retain the arms (3) in their open position against the bias of springs (5) until the shaft (16) is rotated on an animal's head coming into engagement with the trigger arm (18).

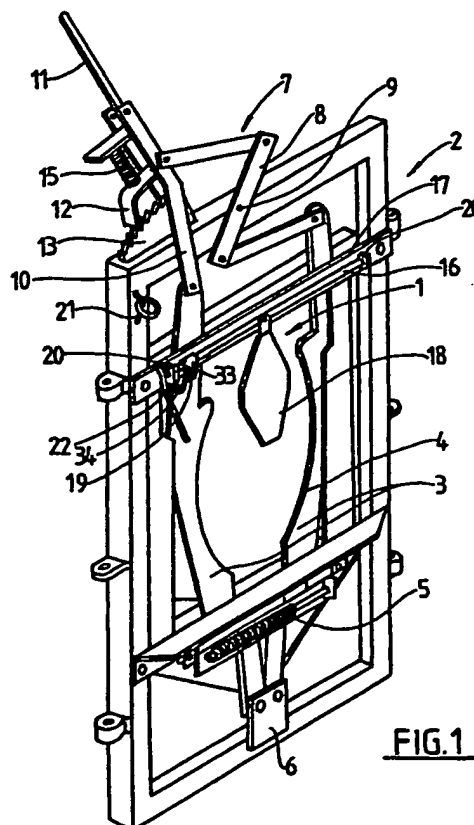
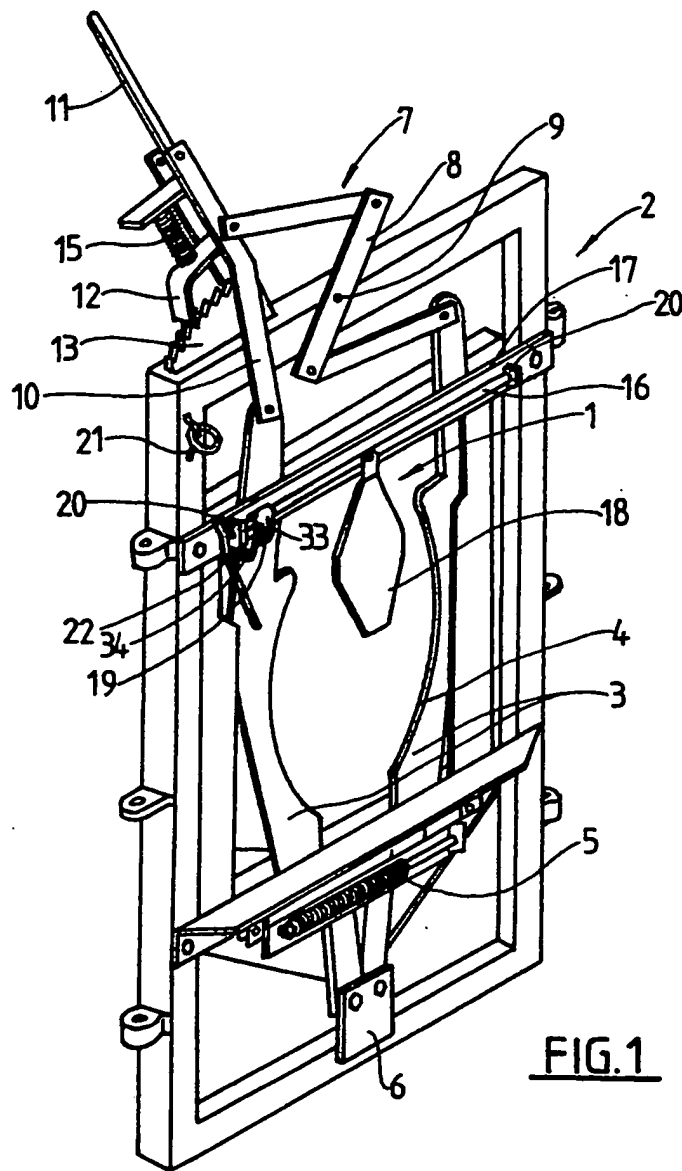


FIG.1

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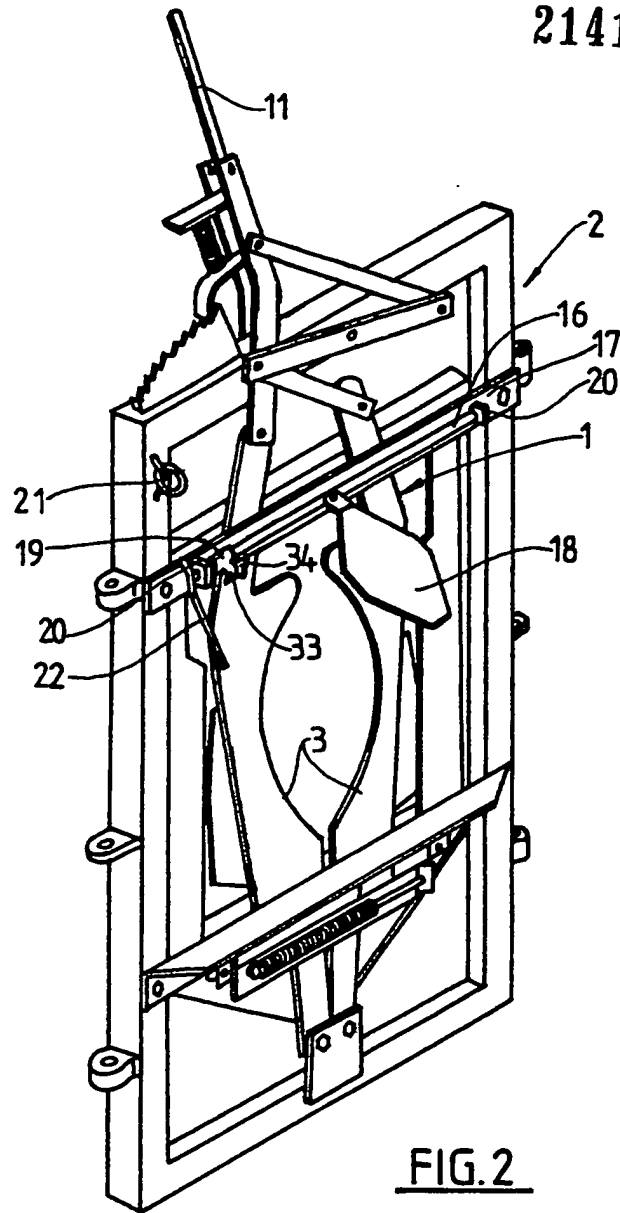


FIG. 2

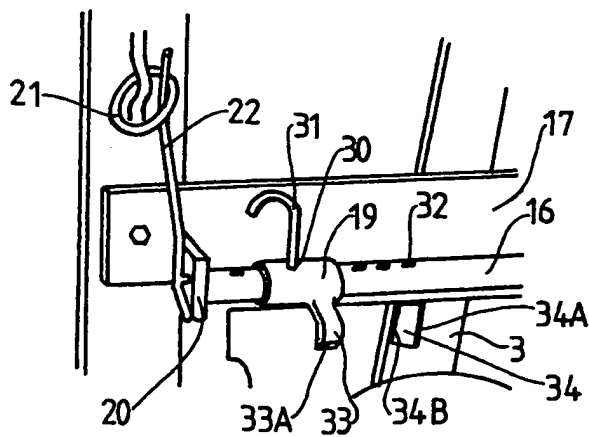


FIG. 3

SPECIFICATION

A triggering mechanism for a head bail

The present invention relates to an improved head bail and more particularly a new triggering mechanism therefor.

In our New Zealand patent specification No. 177789 there is disclosed an animal head bail having a pair of neck engaging arms which are triggered into a closed position by the engagement of the trigger mechanism by the animal's brisquet.

The use of the animal's brisquet or neck to trigger the head bail are the two alternatives used in head bails currently available in New Zealand.

While our head bail of specification 177789 operates effectively, it was desired to improve the action of the triggering mechanism in making it more positive and also in making the bail suitable for cows and calves as well as cattle i.e. to make the triggering mechanism not require the animal to have a brisquet.

Additionally it was desired to enable the triggering to be effected even if the animal tries to jump through the head bail and to avoid premature triggering by the foot or nose of the animal for example.

It is thus an object of the present invention to provide a head bail having a triggering mechanism which will avoid or at least obviate the above disadvantages of head bails available at the present time.

Further objects of this invention will become apparent from the following description.

According to one aspect of the present invention there is thus provided a triggering mechanism for a head bail including a framework and a pair of arms movable relative one with the other between open and closed positions and at least one of said arms biased towards said closed position, said arms being pivotally mounted at a bottom end of a framework, said triggering mechanism comprising a shaft rotatably mountable on said framework and provided with a catch means adapted to engage with said one of said arms to hold same in an open position, an animal head engaging means provided on said shaft so as to be centrally positionable between and in front of said arms when in said open position whereby upon said animal's head engaging said engaging means said shaft will rotate, releasing said catch means from said one of said arms enabling the bias on said arm(s) to bring said arms into said closed position.

According to another aspect of this invention there is provided an animal head bail incorporating a trigger mechanism as above defined.

Further aspects of this invention which should be considered in all its novel aspects, will become apparent from the following description given by way of example of a possible embodiment thereof and in which reference is made to the accompanying drawings wherein;

Figure 1: shows diagrammatically, an animal head bail incorporating a triggering means

65 according to one possible embodiment of the invention with said bail being in its open position; Figure 2: shows the head bail of Figure 1 with the bail in its closed position;

Figure 3: shows an enlarged view of one end of the trigger mechanism of the preceding Figures.

The present invention is particularly but not exclusively directed towards a head bail of the type described in our New Zealand patent specification No. 177789. Accordingly whilst various features of this type of head bail will be described hereinafter, for a detailed description thereof reference should be made to our aforementioned specification.

Thus, referring to the accompanying drawings a triggering mechanism referenced generally by arrow 1 is shown mounted on a head bail referenced generally by arrow 2, the latter being substantially the same as that described in our aforementioned patent specification 177789 except in that the brisquet triggering mechanism has now been omitted and replaced by the triggering mechanism of the present invention.

The head bail 2 is shown provided in known manner with a pair of arms 3 approximating on their inner surfaces 4 the neck profile of an animal and being biased together by springs 5 on the front and back of the head bail (only the front spring 5 being shown) the arms 3 being pivoted together at a bottom end of the head bail on mounting plate 6.

At their upper ends the arms are shown connected via a lever mechanism 7 one arm 8 of which being pivoted at 9 at the top of the head bail 2. The lever portion 10 is shown connected with a handle 11 associated with a pawl 12 engageable with the ratchet 13.

Briefly describing the operation of such a head bail 2, once the arms 3 have been triggered from their open position shown in Figure 1 they will travel under the influence of springs 5 to the closed position shown in Figure 2 with the pawl 12 riding over the ratchet 13 until the arms 3 have engaged with the animal's neck at which point the pawl 12 will engage in a tooth of the ratchet 13 to hold the arms 3 in the closed position.

When the animal is required to be released, downward movement of the handle 11 will cause the lifting of the pawl 12 against the bias of the spring 15 to enable the pawls 12 to be moved backward over the ratchet 13 until, as described hereinafter, a catch will hold the arms 3 in the open position ready for the next triggering thereof.

The triggering mechanism 1 is shown comprising a shaft 16 mounted on a transverse plate member 17.

Positioned substantially centrally of the shaft 16 is shown a trigger arm 18. Although shown as a solid substantially diamond-shape this could alternatively be open and/or substantially circular, square, oblong or the like. The arm 18 depends downwardly from the shaft 16 and is movable therewith. The trigger arm 18 is so sized and positioned that it will engage the head of an animal placing its head between the open arms 3.

A catch means 19 shown in greater detail in Figure 3 is slidably positioned on the shaft 16 so that a projection 33 thereof engages with one of the arms 3 once the arms 3 have assumed a desired width of opening. Suitably the catch means 19, as shown, includes a hollow cylindrical portion which has an aperture 30 therethrough which can accommodate a locking bolt or pin 31 which can engage with an appropriate one of a plurality of apertures 32 provided through the shaft 16.

The shaft 16 is shown rotatably mounted on the plate 17 between mounting plates 20.

The projection 33 of the catch means 19 suitably engages with a projection 34 provided on the surface of the arm 3. The projection 34 is suitably a block of a wedge-shape with a raised front edge 34A and a lower rear edge 34B. The projection 33 of the catch means 19 suitably has a chamfered edge 33A to facilitate the projection 33 sliding over the projection 34 to engage in front of the front edge 34A in holding the arms 3 in the open position shown in Figure 1.

However, upon an animal's head engaging with the trigger arm 18 the shaft 16 will be caused to rotate lifting the catch means 19 and thus releasing the engaged arm 3 so that both arms 3 will then travel towards the closed position.

A handle 22 is shown provided at one end of the shaft 16 so as to enable the trigger to be reset.

The handle 22 can be engaged within a ring 21 once the trigger arm 18 has been triggered so as to keep the trigger arm 18 away from the animal's head.

By the adjustment of the distance between the opened arms 3 by the movement of the catch means 19 on the shaft 16, various sizes of animal can be accommodated.

It will be seen that as the triggering is effected after the animal's head has been introduced between the open arms 3, premature triggering by the foot or nose of the animal before its head has been inserted into the opening cannot now take place. Also, as triggering does not rely on the animal's brislet, cows and calves can be readily accommodated thereby.

A stop (not shown) may be provided on the shaft 16 which will engage with the plate 17 when the trigger arm is in its correctly set position and this prevents the shaft 16 being rotated too far placing the trigger arm 18 and catch 19 in an incorrect position.

The stop may suitably be a small projection which will engage beneath the lower edge of the plate 17 as the lever 22 is rotated moving the trigger arm 18 downwardly.

It is envisaged that the trigger mechanism of the present invention may be incorporated in new head bails or fitted onto existing head bails such as those of the aforementioned New Zealand patent specification. It is emphasised that the basic head bail 2 as shown in the drawings is by way of example only. Other types could utilise the triggering mechanism of the present invention for example those types in which one arm is fixed and

only the other arm is biased for movement.

Although this invention has been described by way of example and with reference to one possible embodiment thereof it is to be understood that modifications or improvements may be made thereto without departing from the scope of the invention as defined in the appended claims.

CLAIMS

1. A triggering mechanism for a head bail including a framework and a pair of arms movable relative one with the other between open and closed positions and at least one of said arms biased towards said closed position, said arms being pivotally mounted at a bottom end of a framework, said triggering mechanism comprising a shaft rotatably mountable on said framework and provided with a catch means adapted to engage with said one of said arms to hold same in an open position, an animal head engaging means provided on said shaft so as to be centrally positionable between and in front of said arms when in said open position whereby upon said animal's head engaging with said engaging means said shaft will rotate, releasing said catch means from said one of said arms enabling the bias on said arm(s) to bring said arms into said closed position.

2. A triggering mechanism as claimed in claim 1 wherein said catch means comprises a collar slidably mounted on said shaft and securable at a desired position therealong in adjusting the separation of said arms when in their open position.

3. A triggering mechanism as claimed in claim 2 wherein said collar includes a hollow cylindrical portion mounted on said shaft and a projecting portion for engagement with said one of said arms.

4. A triggering mechanism as claimed in any one of the preceding claims wherein said one of said arms includes a projection adapted to be engagable with said catch means.

5. A triggering mechanism as claimed in claim 4 wherein said projection comprises a wedge-shaped block, a raised front edge of which is engagable by said catch means to hold said one of said arms.

6. A triggering mechanism as claimed in claim 5 wherein said projecting portion of said catch means includes a chamfered bottom edge thereof to facilitate the sliding of said edge across said wedge-shaped block.

7. A triggering mechanism as claimed in any one of the preceding claims wherein said animal head engaging means comprises a trigger arm depending downwardly from the shaft.

8. A triggering mechanism as claimed in any one of the preceding claims wherein said shaft includes a handle means to facilitate the resetting of the catch means after triggering, a handle retaining means being adapted to engage with said handle means to raise the animal head engaging means away from the animal's head after triggering.

9. A triggering mechanism for a head bail substantially as herein described with reference to the accompanying drawings.

5 10. A animal head bail incorporating a trigger mechanism as claimed in any one of the preceding claims.

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